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GROUP 1700 Customer No. 22,852
Attorney Docket No. 06854.0017-00000
PATENT
7/31/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Tamotsu Kataoka et al.) Group Art Unit: 1772
Serial No.: 09/857,898) Examiner: Catherine A. Simone
Filed: June 13, 2001)
For: Multilayered Film and Container)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE

In response to the Office Action of March 7, 2003, reconsideration is requested of the final rejection of claims 1-8 under § 103(a) on the ground that the claimed invention is not obvious in view of the cited Watanabe references.

The present invention as set forth in claim 1, claims 2-8 being dependent therefrom, relates to a multilayered film having five layers in which, in essence

a first layer is made of (A) an ethylene · α-olefin copolymer having a density of 0.930 to 0.950 g/cm³;

a second layer is made of:

(B) a mixed resin of an ethylene · α-olefin copolymer having a density of 0.910 to 0.930 g/cm³, an ethylene · α-olefin elastomer having a density of 0.860 to 0.900 g/cm³ and a high-density polyethylene having a density of 0.955 to 0.970 g/cm³; or

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(C) a mixed resin of a polypropylene having a density of 0.900 to 0.930 g/cm³, an ethylene · α-olefin elastomer having a density of 0.860 to 0.900 g/cm³ and a high-density polyethylene having a density of 0.955 to 0.970 g/cm³;

a third layer is made of (A) an ethylene · α-olefin copolymer having a density of 0.930 to 0.950 g/cm³, or

(D) a mixed resin of a polypropylene having a density of 0.900 to 0.930 g/cm³ and an ethylene · α-olefin elastomer having a density of 0.860 to 0.900 g/cm³;

a fourth layer is made of (C) a mixed resin of a polypropylene having a density of 0.900 to 0.930 g/cm³, an ethylene · α-olefin elastomer having a density of 0.860 to 0.900 g/cm³ and a high-density polyethylene having a density of 0.955 to 0.970 g/cm³; and

a fifth layer is made of (A) an ethylene · α-olefin copolymer having a density of 0.930 to 0.950 g/cm³.

The multilayered film is suitable for forming flexible containers for use in the medical field such as a bag for holding infusion fluids. Multilayered bags made from polyethylene resin are generally known in the medical field, but they are deficient in one or more respects as set forth on page 3 of the specification. The present invention, avoids these deficiencies by providing a multilayered film that is superior in heat resistance, blocking resistance, strength, sealability, transparency, and flexibility.

The Examiner's rejection is that the invention is obvious over EP 0 699521 to Watanabe et al. (hereafter EP'521) in view of U.S. Patent No. 5,478,617 to Watanabe et al. (hereafter US'617). As noted in the last response, both of these references are

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Washington, DC 20005
202.408.4000
Fax 202.408.4400
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patents belonging to the assignee of the present application, so applicants are well familiar with the teachings of these references.

As agreed with the Examiner, EP'521 also discloses a multilayered film having five layers containing one or more ethylene · α-olefin copolymers in the layers that have densities similar to those of the layers of the film of the present invention. The first, second, third and fifth layers of the multilayered film of the reference can be the same as the corresponding layers of the multilayered film of claim 1, but the fourth layer is not the same. The fourth layer of the film of claim 1 is a mixed resin of

35 to 55% by weight of a polypropylene having a density of 0.900 to 0.930 g/cm³, 40 to 60% by weight of an ethylene · α-olefin elastomer having a density of 0.860 to 0.900 g/cm³ and 2 to 8% by weight of a high-density polyethylene having a density of 0.955 to 0.970 g/cm³. [i.e., mixed resin (C) in claim 1]

In EP'521, the fourth layer of the multilayered film is the same as the second layer, namely a mixed resin of two ethylene · α-olefin copolymers and a high-density polyethylene of similar densities. In essence then, the difference is that in the fourth layer of the film of the present invention from 35 to 55% by weight of a polypropylene having a density of 0.900 to 0.930 g/cm³ has replaced the 40 to 60% by weight of an ethylene · α-olefin having a density of 0.900 to 0.920 g/cm³. See the description of the resin mixture of the second layer beginning on page 3, line 58 of EP'521, the fourth layer being the same as the second layer.

US'617 teaches a mixed resin containing polypropylene in a multilayered film used for making a container in the medical field.

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The Examiner therefore believes it would have been obvious to one skilled in the art to substitute the mixed resin of the fourth layer of EP'521 with the polypropylene-containing layer of US'617.

In the last response, it was argued that the purpose of the polypropylene-containing layer of US'617 is entirely different than the purpose of the fourth layer in the claimed film and that therefore such a substitution would not be obvious to one skilled in the art. As noted in column 1, lines 53-59 of US'617, the object of the invention of this reference is to provide a multi-layer film that can endure high-temperature sterilization "wherein an easy peelable part causes no weld by a sterilization treatment when it is used for a container having a plurality of chambers" and further in column 4, lines 55-61 that the polypropylene component is used in the inner layer of the multi-layered film for this purpose. See also column 6, lines 7-12 where it states that:

when the container of the present invention is molded into a container having a plurality of chambers, the easy peelable seal part between the respective chambers can be formed by directly heat-sealing under a mild condition in comparison with the heat-sealing condition of the peripheral edge part.

On the other hand, in the present invention, the mixed resin containing polypropylene used in the fourth layer and optionally also in the second layer is used to provide flexibility, heat resistance, formability and pinhole resistance to the multilayered film (see page 11, line 25 to page 12, line 4 of the specification). Thus the purpose and effect of the mixed resin containing polypropylene in the fourth layer of the multilayered film of the present invention are entirely different from the purpose and effect of the polypropylene-containing inner layer of the multilayered film of US'617. Clearly none of these properties and particularly the greater pinhole resistance provided by the claimed fourth layer of the multilayered film of the present invention is suggested by either of the

FINNEGAN
HENDERSON
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1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
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cited references. It might have been obvious to substitute the polypropylene-containing layer of US'617 for the fourth layer of EP'521 if it had no effect on the properties of the multilayered film of EP'521 or brought to it properties suggested by US'617. However, when it provides a property to the film neither taught nor suggested by the references, it cannot be said to be obvious. See the quotes from Uniroyal , Inc. v. Rudkin-Wiley Corp and In re Kotzab cited in the last response at pages 6 and 7.

In support of applicant's position, enclosed is a Rule132 Declaration of Mr. Tamotsu Kataoka, one of the inventors, that demonstrates that the claimed multilayered film has a greater pinhole resistance compared to the multilayered film of EP'521.

As shown in the Declaration, three multilayered films were produced in which the first, second, third, and fifth layers in each were the same as claimed and disclosed in EP'521. However, the fourth layer of film (1) contained polypropylene while the fourth layers of films (2) and (3) did not. Rather they were mixed resins similar to that of the second layer. See Table 1 on page 4 of the Declaration. The pinhole test performed on each film is also set forth on page 4.

As can be seen from Table 2 on page 5, the pinhole resistance of multilayered film (1) was significantly superior to that of multilayered films (2) and (3). As noted, the proportion of specimens made from film (1) where pinholes were found was smaller than 5%, whereas under the same conditions the proportion of specimens made from films (2) and (3) where pinholes were found was as large as 40% and 44%, respectively.

Accordingly, it is submitted that because the claimed multilayered film is superior to the multilayered film of EP'521 with respect to pinhole resistance, and there is no

FINNEGAN
HENDERSON
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GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
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suggestion whatsoever in US'617 that by using a polypropylene-containing mixed resin as the fourth layer of the multilayered film of EP'521, the multilayered film would have such properties, it cannot be said that the claimed invention is obvious over EP'521 in view of US'617.

Withdrawal of the rejection of the claims over the cited combination of references and allowance of claims 1-8 is therefore requested.

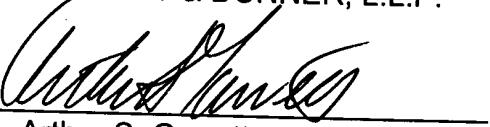
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: July 7, 2003

By:


Arthur S. Garrett
Reg. No. 20,338

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

555796

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
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